



SEQUENCE LISTING

<110> Messier, Walter
Sikela, James M

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<120> Methods to Identify Polynucleotide and Polypeptide
Sequences Which May Be Associated with Physiological
and Medical Conditions

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<151> 2000-06-09

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<170> PatentIn Ver. 2.0

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ata gag acc ccg ttg cct aaa aag gag ttg ctt ctg ggt ggg aac aac 144
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 Cys Tyr Ser Asn Cys Pro Asp Gly Gln Ser Thr Ala Lys Thr Phe Leu
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<212> PRT

<213> Homo sapiens

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<210> 7
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<210> 8
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Cys	Lys	Lys	Asp	Leu	Cys	Asn	Phe	Asn	Glu	Gln	Leu	Glu	Asn	Gly	Gly
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Gly	Leu	Gln	Val	Tyr	Asn	Lys	Cys	Trp	Lys	Leu	Glu	His	Cys	Asn	Phe
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Lys	Asp	Leu	Thr	Thr	Arg	Leu	Arg	Glu	Asn	Glu	Leu	Thr	Tyr	Tyr	Cys
	50					55					60				

Cys	Lys	Lys	Asp	Leu	Cys	Asn	Phe	Asn	Glu	Gln	Leu	Glu	Asn	Gly	Gly
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gtg cac agc gac ctg gcc ctg cgg aac tgc ctg ctc acg gct gac ctg	706
Val His Ser Asp Leu Ala Leu Arg Asn Cys Leu Leu Thr Ala Asp Leu	
85 90 95	
acg gtg aag att ggt gac tat ggc ctg gct cac tgc aag tac aga gag	754
Thr Val Lys Ile Gly Asp Tyr Gly Leu Ala His Cys Lys Tyr Arg Glu	
100 105 110	
gac tac ttc gtg act gcc gac cag ctg tgg gtg cct ctg cgc tgg atc	802
Asp Tyr Phe Val Thr Ala Asp Gln Leu Trp Val Pro Leu Arg Trp Ile	
115 120 125 130	
gcg cca gag ctg gtg gac gag gtg cat agc aac ctg ctc gtc gtg gac	850
Ala Pro Glu Leu Val Asp Glu Val His Ser Asn Leu Leu Val Val Asp	
135 140 145	
cag acc aag agc ggg aat gtg tgg tcc ctg ggc gtg acc atc tgg gag	898
Gln Thr Lys Ser Gly Asn Val Trp Ser Leu Gly Val Thr Ile Trp Glu	
150 155 160	
ctc ttt gag ctg ggc acg cag ccc tat ccc cag cac tcg gac cag cag	946
Leu Phe Glu Leu Gly Thr Gln Pro Tyr Pro Gln His Ser Asp Gln Gln	
165 170 175	
gtg ctg gcg tac acg gtc cgg gag cag cag ctc aag ctg ccc aag ccc	994
Val Leu Ala Tyr Thr Val Arg Glu Gln Gln Leu Lys Leu Pro Lys Pro	
180 185 190	
cag ctg cag ctg acc ctg tcg gac cgc tgg tac gag gtg atg cag ttc	1042
Gln Leu Gln Leu Thr Leu Ser Asp Arg Trp Tyr Glu Val Met Gln Phe	
195 200 205 210	
tgc tgg ctg cag ccc gag cag cgg ccc aca gcc gag gag gtg cac ctg	1090
Cys Trp Leu Gln Pro Glu Gln Arg Pro Thr Ala Glu Glu Val His Leu	
215 220 225	
ctg ctg tcc tac ctg tgt gcc aag ggc gcc acc gaa gca gag gag gag	1138
Leu Leu Ser Tyr Leu Cys Ala Lys Gly Ala Thr Glu Ala Glu Glu Glu	
230 235 240	
ttt gaa cgg cgc tgg cgc tct ctg cgg ccc ggc ggg ggc ggc gtg ggg	1186
Phe Glu Arg Arg Trp Arg Ser Leu Arg Pro Gly Gly Gly Gly Val Gly	
245 250 255	
ccc ggg ccc ggt gcg gcg ggg ccc atg ctg ggc ggc gtg gtg gag ctc	1234
Pro Gly Pro Gly Ala Ala Gly Pro Met Leu Gly Gly Val Val Glu Leu	
260 265 270	
gcc gct gcc tcg tcc ttc ccg ctg ctg gag cag ttc gcg ggc gac ggc	1282
Ala Ala Ala Ser Ser Phe Pro Leu Leu Glu Gln Phe Ala Gly Asp Gly	
275 280 285 290	
ttc cac gcg gac ggc gac gac gtg ctg acg gtg acc gag acc agc cga	1330

Phe	His	Ala	Asp	Gly	Asp	Asp	Val	Leu	Thr	Val	Thr	Glu	Thr	Ser	Arg	
				295					300					305		
ggc	ctc	aat	ttt	gag	tac	aag	tgg	gag	gcg	ggc	cgc	ggc	gcg	gag	gcc	1378
Gly	Leu	Asn	Phe	Glu	Tyr	Lys	Trp	Glu	Ala	Gly	Arg	Gly	Ala	Glu	Ala	
			310					315					320			
ttc	ccg	gcc	acg	ctg	agc	cct	ggc	cgc	acc	gca	cgc	ctg	cag	gag	ctg	1426
Phe	Pro	Ala	Thr	Leu	Ser	Pro	Gly	Arg	Thr	Ala	Arg	Leu	Gln	Glu	Leu	
			325				330					335				
tgc	gcc	ccc	gac	ggc	gcg	ccc	ccg	ggc	gtg	gtt	ccg	gtg	ctc	agc	gcg	1474
Cys	Ala	Pro	Asp	Gly	Ala	Pro	Pro	Gly	Val	Val	Pro	Val	Leu	Ser	Ala	
	340					345					350					
cac	agc	ccg	tcg	ctg	ggc	agc	gag	tac	ttc	atc	cgc	cta	gag	gag	gcc	1522
His	Ser	Pro	Ser	Leu	Gly	Ser	Glu	Tyr	Phe	Ile	Arg	Leu	Glu	Glu	Ala	
	355				360					365					370	
gca	ccc	gcc	gcc	ggc	cac	gac	cct	gac	tgc	gcc	ggc	tgc	gcc	ccc	agt	1570
Ala	Pro	Ala	Ala	Gly	His	Asp	Pro	Asp	Cys	Ala	Gly	Cys	Ala	Pro	Ser	
				375				380						385		
cca	cct	gcc	acc	gcg	gac	cag	gac	gac	gac	tct	gac	ggc	agc	acc	gcc	1618
Pro	Pro	Ala	Thr	Ala	Asp	Gln	Asp	Asp	Asp	Ser	Asp	Gly	Ser	Thr	Ala	
			390				395						400			
gcc	tcg	ctg	gcc	atg	gag	ccg	ctg	ctg	ggc	cac	ggg	cca	ccc	gtc	gac	1666
Ala	Ser	Leu	Ala	Met	Glu	Pro	Leu	Leu	Gly	His	Gly	Pro	Pro	Val	Asp	
		405					410					415				
gtc	ccc	tgg	ggc	cgc	ggc	gac	cac	tac	cct	cgc	aga	agc	ttg	gcg	cgg	1714
Val	Pro	Trp	Gly	Arg	Gly	Asp	His	Tyr	Pro	Arg	Arg	Ser	Leu	Ala	Arg	
	420					425					430					
gac	ccg	ctc	tgc	ccc	tca	cgc	tct	ccc	tcg	ccc	tcg	gcg	ggg	ccc	ctg	1762
Asp	Pro	Leu	Cys	Pro	Ser	Arg	Ser	Pro	Ser	Pro	Ser	Ala	Gly	Pro	Leu	
	435				440				445					450		
agt	ctg	gcg	gag	gga	gga	gcg	gag	gat	gca	gac	tgg	ggc	gtg	gcc	gcc	1810
Ser	Leu	Ala	Glu	Gly	Gly	Ala	Glu	Asp	Ala	Asp	Trp	Gly	Val	Ala	Ala	
			455				460						465			
ttc	tgt	cct	gcc	ttc	ttc	gag	gac	cca	ctg	ggc	acg	tcc	cct	ttg	ggg	1858
Phe	Cys	Pro	Ala	Phe	Phe	Glu	Asp	Pro	Leu	Gly	Thr	Ser	Pro	Leu	Gly	
			470				475						480			
agc	tca	ggg	gcg	ccc	ccg	ctg	ccg	ctg	act	ggc	gag	gat	gag	cta	gag	1906
Ser	Ser	Gly	Ala	Pro	Pro	Leu	Pro	Leu	Thr	Gly	Glu	Asp	Glu	Leu	Glu	
			485				490					495				
gag	gtg	gga	gcg	cgg	agg	gcc	gcc	cag	cgc	ggg	cac	tgg	cgc	tcc	aac	1954
Glu	Val	Gly	Ala	Arg	Arg	Ala	Ala	Gln	Arg	Gly	His	Trp	Arg	Ser	Asn	
	500					505					510					
gtg	tca	gcc	aac	aac	aac	agc	ggc	agc	cgc	tgt	cca	gag	tcc	tgg	gac	2002
Val	Ser	Ala	Asn	Asn	Asn	Ser	Gly	Ser	Arg	Cys	Pro	Glu	Ser	Trp	Asp	

515	520	525	530	
ccc gtc tct gcg ggc tgc cac gct gag ggc tgc ccc agt cca aag cag Pro Val Ser Ala Gly Cys His Ala Glu Gly Cys Pro Ser Pro Lys Gln	535	540	545	2050
acc cca cgg gcc tcc ccc gag ccg ggg tac cct gga gag cct ctg ctt Thr Pro Arg Ala Ser Pro Glu Pro Gly Tyr Pro Gly Glu Pro Leu Leu	550	555	560	2098
ggg ctc cag gca gcc tct gcc cag gag cca ggc tgc tgc ccc ggc ctc Gly Leu Gln Ala Ala Ser Ala Gln Glu Pro Gly Cys Cys Pro Gly Leu	565	570	575	2146
cct cat cta tgc tct gcc cag ggc ctg gca cct gct ccc tgc ctg gtt Pro His Leu Cys Ser Ala Gln Gly Leu Ala Pro Ala Pro Cys Leu Val	580	585	590	2194
aca ccc tcc tgg aca gag aca gcc agt agt ggg ggt gac cac ccg cag Thr Pro Ser Trp Thr Glu Thr Ala Ser Ser Gly Gly Asp His Pro Gln	595	600	605	2242
gca gag ccc aag ctt gcc acg gag gct gag ggc act acc gga ccc cgc Ala Glu Pro Lys Leu Ala Thr Glu Ala Glu Gly Thr Thr Gly Pro Arg	615	620	625	2290
ctg ccc ctt cct tcc gtc ccc tcc cca tcc cag gag gga gcc cca ctt Leu Pro Leu Pro Ser Val Pro Ser Pro Ser Gln Glu Gly Ala Pro Leu	630	635	640	2338
ccc tcg gag gag gcc agt gcc ccc gac gcc cct gat gcc ctg cct gac Pro Ser Glu Glu Ala Ser Ala Pro Asp Ala Pro Asp Ala Leu Pro Asp	645	650	655	2386
tct ccc acg cct gct act ggt ggc gag gtg tct gcc atc aag ctg gct Ser Pro Thr Pro Ala Thr Gly Gly Glu Val Ser Ala Ile Lys Leu Ala	660	665	670	2434
tct gcc ctg aat ggc agc agc agc tct ccc gag gtg gag gca ccc agc Ser Ala Leu Asn Gly Ser Ser Ser Ser Pro Glu Val Glu Ala Pro Ser	675	680	685	2482
agt gag gat gag gac acg gct gag gcc acc tca ggc atc ttc acc gac Ser Glu Asp Glu Asp Thr Ala Glu Ala Thr Ser Gly Ile Phe Thr Asp	695	700	705	2530
acg tcc agc gac ggc ctg cag gcc agg agg ccg gat gtg gtg cca gcc Thr Ser Ser Asp Gly Leu Gln Ala Arg Pro Asp Val Val Pro Ala	710	715	720	2578
ttc cgc tct ctg cag aag cag gtg ggg acc ccc gac tcc ctg gac tcc Phe Arg Ser Leu Gln Lys Gln Val Gly Thr Pro Asp Ser Leu Asp Ser	725	730	735	2626
ctg gac atc ccg tcc tca gcc agt gat ggt ggc tat gag gtc ttc agc Leu Asp Ile Pro Ser Ser Ala Ser Asp Gly Gly Tyr Glu Val Phe Ser	740	745	750	2674

ccg tcg gcc act ggc ccc tct gga ggg cag ccg cga gcg ctg gac agt	2722
Pro Ser Ala Thr Gly Pro Ser Gly Gly Gln Pro Arg Ala Leu Asp Ser	
755 760 765 770	
ggc tat gac acc gag aac tat gag tcc cct gag ttt gtg ctc aag gag	2770
Gly Tyr Asp Thr Glu Asn Tyr Glu Ser Pro Glu Phe Val Leu Lys Glu	
775 780 785	
gcg cag gaa ggg tgt gag ccc cag gcc ttt gcg gag ctg gcc tca gag	2818
Ala Gln Glu Gly Cys Glu Pro Gln Ala Phe Ala Glu Leu Ala Ser Glu	
790 795 800	
ggt gag ggc ccc ggg ccc gag aca cgg ctc tcc acc tcc ctc agt ggc	2866
Gly Glu Gly Pro Gly Pro Glu Thr Arg Leu Ser Thr Ser Leu Ser Gly	
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ctc aac gag aag aat ccc tac cga gac tct gcc tac ttc tca gac ctc	2914
Leu Asn Glu Lys Asn Pro Tyr Arg Asp Ser Ala Tyr Phe Ser Asp Leu	
820 825 830	
gag gct gag gcc gag gcc acc tca ggc cca gag aag aag tgc ggc ggg	2962
Glu Ala Glu Ala Glu Ala Thr Ser Gly Pro Glu Lys Lys Cys Gly Gly	
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Asp Arg Ala Pro Gly Pro Glu Leu Gly Leu Pro Ser Thr Gly Gln Pro	
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Ser Glu Gln Val Cys Leu Arg Pro Gly Val Ser Gly Glu Ala Gln Gly	
870 875 880	
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Ser Gly Pro Gly Glu Val Leu Pro Pro Leu Leu Gln Leu Glu Gly Ser	
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Ser Pro Glu Pro Ser Thr Cys Pro Ser Gly Leu Val Pro Glu Pro Pro	
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Glu Pro Gln Gly Pro Ala Lys Val Arg Pro Gly Pro Ser Pro Ser Cys	
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tcc cag ttt ttc ctg ctg acc ccg gtt ccg ctg aga tca gaa ggc aac	3250
Ser Gln Phe Phe Leu Leu Thr Pro Val Pro Leu Arg Ser Glu Gly Asn	
935 940 945	
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Ser Ser Glu Phe Gln Gly Pro Pro Gly Leu Leu Ser Gly Pro Ala Pro	
950 955 960	
caa aag cgg atg ggg ggc cca ggc acc ccc aga gcc cca ctc cgc ctg	3346
Gln Lys Arg Met Gly Gly Pro Gly Thr Pro Arg Ala Pro Leu Arg Leu	
965 970 975	

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Ala Leu Pro Gly Leu Pro Ala Ala Leu Glu Gly Arg Pro Glu Glu Glu	
980 985 990	
gag gag gac agt gag gac agc gac gag tct gac gag gag ctc cgc tgc	3442
Glu Glu Asp Ser Glu Asp Ser Asp Glu Ser Asp Glu Glu Leu Arg Cys	
995 1000 1005 1010	
tac agc gtc cag gag cct agc gag gac agc gaa gag gag gcg ccg gcg	3490
Tyr Ser Val Gln Glu Pro Ser Glu Asp Ser Glu Glu Glu Ala Pro Ala	
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gtg ccc gtg gtg gtg gct gag agc cag agc gcg cgc aac ctg cgc agc	3538
Val Pro Val Val Val Ala Glu Ser Gln Ser Ala Arg Asn Leu Arg Ser	
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ctg ctc aag atg ccc agc ctg ctg tcc gag acc ttc tgc gag gac ctg	3586
Leu Leu Lys Met Pro Ser Leu Leu Ser Glu Thr Phe Cys Glu Asp Leu	
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gaa cgc aag aag aag gcc gtg tcc ttc ttc gac gac gtc acc gtc tac	3634
Glu Arg Lys Lys Lys Ala Val Ser Phe Phe Asp Asp Val Thr Val Tyr	
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ctc ttt gac cag gaa agc ccc acc cgg gag ctc ggg gag ccc ttc ccg	3682
Leu Phe Asp Gln Glu Ser Pro Thr Arg Glu Leu Gly Glu Pro Phe Pro	
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ggc gcc aag gaa tcg ccc cct acg ttc ctt agg ggg agc ccc ggc tct	3730
Gly Ala Lys Glu Ser Pro Pro Thr Phe Leu Arg Gly Ser Pro Gly Ser	
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Pro Ser Ala Pro Asn Arg Pro Gln Gln Ala Asp Gly Ser Pro Asn Gly	
1110 1115 1120	
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Ser Thr Ala Glu Glu Gly Gly Gly Phe Ala Trp Asp Asp Asp Phe Pro	
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ctg atg acg gcc aag gca gcc ttc gcc atg gcc cta gac ccg gcc gca	3874
Leu Met Thr Ala Lys Ala Ala Phe Ala Met Ala Leu Asp Pro Ala Ala	
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Pro Ala Pro Ala Ala Pro Thr Pro Thr Pro Ala Pro Phe Ser Arg Phe	
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acg gtg tcg ccc gcg ccc acg tcc cgc ttc tcc atc acg cac gtg tct	3970
Thr Val Ser Pro Ala Pro Thr Ser Arg Phe Ser Ile Thr His Val Ser	
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gac tcg gac gcc gag tcc aag aga gga cct gaa gct ggt gcc ggg ggt	4018
Asp Ser Asp Ala Glu Ser Lys Arg Gly Pro Glu Ala Gly Ala Gly Gly	
1190 1195 1200	
gag agt aaa gag gct tga gacctgggca gctcctgccc ctcaaggctg	4066

Glu Ser Lys Glu Ala
1205

gcgtcaccgg agcccctgcc aggcagcagc gaggatggtg accgagaagg tggggaccac 4126
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<212> PRT
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<400> 16
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Asn Leu Leu Gln Cys Leu Ala Gln Cys Ala Glu Val Thr Pro Tyr Leu
20 25 30
Leu Val Met Glu Phe Cys Pro Leu Gly Asp Leu Lys Gly Tyr Leu Arg
35 40 45
Ser Cys Arg Val Ala Glu Ser Met Ala Pro Asp Pro Arg Thr Leu Gln
50 55 60

Arg	Met	Ala	Cys	Glu	Val	Ala	Cys	Gly	Val	Leu	His	Leu	His	Arg	Asn	
65					70					75					80	
Asn	Phe	Val	His	Ser	Asp	Leu	Ala	Leu	Arg	Asn	Cys	Leu	Leu	Thr	Ala	
				85					90					95		
Asp	Leu	Thr	Val	Lys	Ile	Gly	Asp	Tyr	Gly	Leu	Ala	His	Cys	Lys	Tyr	
			100					105					110			
Arg	Glu	Asp	Tyr	Phe	Val	Thr	Ala	Asp	Gln	Leu	Trp	Val	Pro	Leu	Arg	
		115					120					125				
Trp	Ile	Ala	Pro	Glu	Leu	Val	Asp	Glu	Val	His	Ser	Asn	Leu	Leu	Val	
	130					135					140					
Val	Asp	Gln	Thr	Lys	Ser	Gly	Asn	Val	Trp	Ser	Leu	Gly	Val	Thr	Ile	
145					150					155					160	
Trp	Glu	Leu	Phe	Glu	Leu	Gly	Thr	Gln	Pro	Tyr	Pro	Gln	His	Ser	Asp	
			165					170						175		
Gln	Gln	Val	Leu	Ala	Tyr	Thr	Val	Arg	Glu	Gln	Gln	Leu	Lys	Leu	Pro	
		180						185					190			
Lys	Pro	Gln	Leu	Gln	Leu	Thr	Leu	Ser	Asp	Arg	Trp	Tyr	Glu	Val	Met	
		195					200					205				
Gln	Phe	Cys	Trp	Leu	Gln	Pro	Glu	Gln	Arg	Pro	Thr	Ala	Glu	Glu	Val	
	210					215					220					
His	Leu	Leu	Leu	Ser	Tyr	Leu	Cys	Ala	Lys	Gly	Ala	Thr	Glu	Ala	Glu	
225					230					235					240	
Glu	Glu	Phe	Glu	Arg	Arg	Trp	Arg	Ser	Leu	Arg	Pro	Gly	Gly	Gly	Gly	
			245					250						255		
Val	Gly	Pro	Gly	Pro	Gly	Ala	Ala	Gly	Pro	Met	Leu	Gly	Gly	Val	Val	
			260					265					270			
Glu	Leu	Ala	Ala	Ala	Ser	Ser	Phe	Pro	Leu	Leu	Glu	Gln	Phe	Ala	Gly	
		275					280					285				
Asp	Gly	Phe	His	Ala	Asp	Gly	Asp	Asp	Val	Leu	Thr	Val	Thr	Glu	Thr	
	290					295					300					
Ser	Arg	Gly	Leu	Asn	Phe	Glu	Tyr	Lys	Trp	Glu	Ala	Gly	Arg	Gly	Ala	
305					310					315					320	
Glu	Ala	Phe	Pro	Ala	Thr	Leu	Ser	Pro	Gly	Arg	Thr	Ala	Arg	Leu	Gln	
			325						330					335		
Glu	Leu	Cys	Ala	Pro	Asp	Gly	Ala	Pro	Pro	Gly	Val	Val	Pro	Val	Leu	
			340					345					350			
Ser	Ala	His	Ser	Pro	Ser	Leu	Gly	Ser	Glu	Tyr	Phe	Ile	Arg	Leu	Glu	
		355					360					365				

Glu Ala Ala Pro Ala Ala Gly His Asp Pro Asp Cys Ala Gly Cys Ala
 370 375 380
 Pro Ser Pro Pro Ala Thr Ala Asp Gln Asp Asp Asp Ser Asp Gly Ser
 385 390 395 400
 Thr Ala Ala Ser Leu Ala Met Glu Pro Leu Leu Gly His Gly Pro Pro
 405 410 415
 Val Asp Val Pro Trp Gly Arg Gly Asp His Tyr Pro Arg Arg Ser Leu
 420 425 430
 Ala Arg Asp Pro Leu Cys Pro Ser Arg Ser Pro Ser Pro Ser Ala Gly
 435 440 445
 Pro Leu Ser Leu Ala Glu Gly Gly Ala Glu Asp Ala Asp Trp Gly Val
 450 455 460
 Ala Ala Phe Cys Pro Ala Phe Phe Glu Asp Pro Leu Gly Thr Ser Pro
 465 470 475 480
 Leu Gly Ser Ser Gly Ala Pro Pro Leu Pro Leu Thr Gly Glu Asp Glu
 485 490 495
 Leu Glu Glu Val Gly Ala Arg Arg Ala Ala Gln Arg Gly His Trp Arg
 500 505 510
 Ser Asn Val Ser Ala Asn Asn Asn Ser Gly Ser Arg Cys Pro Glu Ser
 515 520 525
 Trp Asp Pro Val Ser Ala Gly Cys His Ala Glu Gly Cys Pro Ser Pro
 530 535 540
 Lys Gln Thr Pro Arg Ala Ser Pro Glu Pro Gly Tyr Pro Gly Glu Pro
 545 550 555 560
 Leu Leu Gly Leu Gln Ala Ala Ser Ala Gln Glu Pro Gly Cys Cys Pro
 565 570 575
 Gly Leu Pro His Leu Cys Ser Ala Gln Gly Leu Ala Pro Ala Pro Cys
 580 585 590
 Leu Val Thr Pro Ser Trp Thr Glu Thr Ala Ser Ser Gly Gly Asp His
 595 600 605
 Pro Gln Ala Glu Pro Lys Leu Ala Thr Glu Ala Glu Gly Thr Thr Gly
 610 615 620
 Pro Arg Leu Pro Leu Pro Ser Val Pro Ser Pro Ser Gln Glu Gly Ala
 625 630 635 640
 Pro Leu Pro Ser Glu Glu Ala Ser Ala Pro Asp Ala Pro Asp Ala Leu
 645 650 655
 Pro Asp Ser Pro Thr Pro Ala Thr Gly Gly Glu Val Ser Ala Ile Lys
 660 665 670

Leu	Ala	Ser	Ala	Leu	Asn	Gly	Ser	Ser	Ser	Ser	Pro	Glu	Val	Glu	Ala	675	680	685	
Pro	Ser	Ser	Glu	Asp	Glu	Asp	Thr	Ala	Glu	Ala	Thr	Ser	Gly	Ile	Phe	690	695	700	
Thr	Asp	Thr	Ser	Ser	Asp	Gly	Leu	Gln	Ala	Arg	Arg	Pro	Asp	Val	Val	705	710	715	720
Pro	Ala	Phe	Arg	Ser	Leu	Gln	Lys	Gln	Val	Gly	Thr	Pro	Asp	Ser	Leu	725	730	735	
Asp	Ser	Leu	Asp	Ile	Pro	Ser	Ser	Ala	Ser	Asp	Gly	Gly	Tyr	Glu	Val	740	745	750	
Phe	Ser	Pro	Ser	Ala	Thr	Gly	Pro	Ser	Gly	Gly	Gln	Pro	Arg	Ala	Leu	755	760	765	
Asp	Ser	Gly	Tyr	Asp	Thr	Glu	Asn	Tyr	Glu	Ser	Pro	Glu	Phe	Val	Leu	770	775	780	
Lys	Glu	Ala	Gln	Glu	Gly	Cys	Glu	Pro	Gln	Ala	Phe	Ala	Glu	Leu	Ala	785	790	795	800
Ser	Glu	Gly	Glu	Gly	Pro	Gly	Pro	Glu	Thr	Arg	Leu	Ser	Thr	Ser	Leu	805	810	815	
Ser	Gly	Leu	Asn	Glu	Lys	Asn	Pro	Tyr	Arg	Asp	Ser	Ala	Tyr	Phe	Ser	820	825	830	
Asp	Leu	Glu	Ala	Glu	Ala	Glu	Ala	Thr	Ser	Gly	Pro	Glu	Lys	Lys	Cys	835	840	845	
Gly	Gly	Asp	Arg	Ala	Pro	Gly	Pro	Glu	Leu	Gly	Leu	Pro	Ser	Thr	Gly	850	855	860	
Gln	Pro	Ser	Glu	Gln	Val	Cys	Leu	Arg	Pro	Gly	Val	Ser	Gly	Glu	Ala	865	870	875	880
Gln	Gly	Ser	Gly	Pro	Gly	Glu	Val	Leu	Pro	Pro	Leu	Leu	Gln	Leu	Glu	885	890	895	
Gly	Ser	Ser	Pro	Glu	Pro	Ser	Thr	Cys	Pro	Ser	Gly	Leu	Val	Pro	Glu	900	905	910	
Pro	Pro	Glu	Pro	Gln	Gly	Pro	Ala	Lys	Val	Arg	Pro	Gly	Pro	Ser	Pro	915	920	925	
Ser	Cys	Ser	Gln	Phe	Phe	Leu	Leu	Thr	Pro	Val	Pro	Leu	Arg	Ser	Glu	930	935	940	
Gly	Asn	Ser	Ser	Glu	Phe	Gln	Gly	Pro	Pro	Gly	Leu	Leu	Ser	Gly	Pro	945	950	955	960
Ala	Pro	Gln	Lys	Arg	Met	Gly	Gly	Pro	Gly	Thr	Pro	Arg	Ala	Pro	Leu	965	970	975	

Arg Leu Ala Leu Pro Gly Leu Pro Ala Ala Leu Glu Gly Arg Pro Glu
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